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UNITED STATES DEPARTMENT OF AGRICULTURE  
Bureau of Agricultural Engineering

MONTHLY NEWS LETTER

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No. 12

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: Regulations Governing the Operation of the Branch of Supply, ;  
: Procurement Division, Treasury Department, provide in part that :  
: the Assistant Director of Procurement in charge of the Branch of :  
: Supply shall handle all matters pertaining to special arrangements :  
: or special rate agreements concerning the transportation of Govern- :  
: ment property. No employee of the Bureau is authorized to neg- :  
: otiate directly with railroad companies for reduced rates for rail :  
: shipments. Such matters are to be handled with the Treasury Depart- :  
: ment by the Chief of Bureau. :  
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: Budget and Finance Circular No. 30, dated August 11, 1936, in :  
: reference to indicating on transportation requests the class of :  
: transportation used, is enclosed with this issue of the NEWS LETTER :  
: The instructions in this circular should be carefully noted and :  
: followed. :  
:.....

In the Rio Grande investigation for the National Resources Committee, duty of water studies were continued at the various stations under the direction of Harry F. Blaney. In San Luis Valley, Colorado, 400,000 acres have been selected for a special office study on use of water, and compilation of data on inflow and outflow from this area from 1925 to 1935 was begun. Data for a historical statement is being collected. O. W. Israelsen compiled and analyzed records of the State Water Commissioner and the Rio Grande Canal Water Users Association regarding deliveries to some 26 irrigation companies. Records of crops grown by these companies are being checked by Paul A. Ewing in the Berkeley office, where Census and other statistics are being assembled. In the Middle Rio Grande Valley, New Mexico, compilation of gross diversions of water into canals serving Indian pueblo lands was begun. Field mapping of crops and vegetative cover, under supervision of Fred C. Scobey and Carl Rohwer, was continued. In San Luis Valley 275,000 acres have been mapped.

Specifications for new snow survey equipment to be purchased this year were prepared by J. C. Marr, after consulting with field workers and tool manufacturers. Mr. Marr made a trip through western Montana to arrange cooperation with the Montana Agricultural Experiment Station, to perfect the snow-course network in northern Yellowstone National Park, and to establish new work eastward therefrom on the headwaters of Missouri River in Wyoming. The work of re-surveying, marking, and clearing snow courses in Utah progressed and 19 snow courses on the Strawberry, Duchesne, Green River, Weber, Ogden, and Salt Lake watersheds have been mapped, marked and cleared.

Manuscript for a proposed technical bulletin on the rate of flow of moisture under the influence of capillary forces was submitted by M.R.Lewis.

The rapid rise of the ground water table at Bard, Calif. is reported by D.W.Bloodgood in connection with report of studies carried on at that station. The probable reason for this rise is the change in flow of Colorado River.

R. L. Parshall inspected an area in Arapahoe National Forest, Colo. to investigate the feasibility of establishing a long-time experiment to determine the water yield from various drainages as influenced by ground cover and methods of timber cutting. In this connection snow surveying will play an important part.

Experiments with use of saline water in irrigation were begun near San Dimas, Calif. under the direction of Colin A. Taylor. Considerable difficulty was experienced in getting the gypsum into solution, but this finally was accomplished by using a mechanical agitator in the mixing tank.

F. E. Staebner spent August 18 and 19 in Wheeler County, Ga. advising landowners relative to the practicability of supplemental irrigation in that county.

The E.C.W. District Office at Milwaukee has moved to larger quarters in the Madison Building, 623 North 2nd Street.

J.G. Sutton, District Engineer in charge of the CCC drainage camps in the central region visited Washington, August 17 to 20 for conference relative to his work.

W. P. Ireland, formerly Superintendent of the CCC drainage camp at Anawan, Ill. has been appointed Inspector in the eastern region with headquarters at Georgetown, Dela.

Clark E. Jacoby, Drainage Inspector for the Missouri camps, has returned to duty from leave caused by illness.

The Central District reports the following work accomplishments by its CCC Camps during July: 5,956,632 square yards clearing, 45,893 linear feet of tile reconditioning, and 1,824,320 cubic yards of excavation.

To facilitate the present program of maintenance and rehabilitation of the drainage systems in the work area of the drainage camps, the following additional heavy equipment has been received during the past month: 24 half-yard Diesel-powered draglines, 7 no. 40 tractors with power hoist attachments, 18 no. 22 tractors with backfiller hoist attachments, 45 two-yard capacity dump trucks, and 40 pick-up trucks.

The E.C.W. has allotted \$40,000 to the Bureau of Agricultural Engineering for conducting drainage research in connection with the CCC drainage camp program. Plans are being developed for measurements to determine the value of Kutter's  $n$  in drainage ditches before and after maintenance work has been done, and to make measurements of runoff. Part of the funds will be expended in an attempt to develop better ditch-maintenance equipment.

Active work on the wheat storage experiments at Hays, Kans., Urbana, Ill., and College Park, Md., is nearly completed for the season. Ventilated bins at Hays and Urbana carried the grain through with much less heating and damage than the unventilated bins. However, the results this year, may be more favorable to ventilated bins than in normal seasons on account of the very dry weather. Wheat in ventilated bins at College Park remained in good condition much longer than similar wheat in unventilated bins; but has finally reached temperatures at which damage will occur if not moved and cooled. All wheat in these experiments contained more than the normal amount of moisture. Great difficulty has been experienced in obtaining suitable wheat

for the experiments in North Dakota, because the drought conditions resulted in the wheat being very dry at harvest time. Therefore the State Mill and Elevator will moisten the wheat to the desired condition. It is hoped that filling the experimental bins with this wheat will be completed within the next few days. Wheat stored in farm bins in all sections has been more than usually dry and in most cases seems to be keeping in very good condition. A few cases of heating and damage have been found.

J. R. McCalmont is setting up equipment for measurement of pressures in one of the concrete silos at the Beltsville Research Center. The panel and calibrated steel bar method used in measuring pressures in corn cribs will be used in this work.

W. V. Hukill is assisting in a transit test of a new type of heavily insulated refrigerator car. En route to start the test at Los Angeles, Mr. Hukill visited Thayer Cleaver at Urbana and A. D. Edgar at Hays, to assist in measuring air velocities through stored wheat.

A. H. Senner made a short field trip through eastern Maryland to study the use of bottled gas. In this area there are installations of bottled gas to serve both individual houses and small towns or groups of houses.

J. W. Simons reports that the experimental house at Athens, Ga. is practically completed, and that test work will soon be started. This is a three-room farmhouse so build that ceiling heights can be changed from 8 to 11 feet and that doors and windows can be shifted to any part of the wall. Various types of construction may be substituted in the walls. The effects upon comfort of ceiling height, position of openings, and construction are to be tested.

On August 5 the U. S. Cotton Ginning Laboratory at Stoneville, Miss., ginned the first bale of seed cotton in Washington County. This was grown by one of the Laboratory's cooperators at Stoneville, and was indicative of the extremely heavy cotton that the ginners expect to encounter this fall. Great activity in construction of seed-cotton driers is under way; many are being home-made since some manufacturers have stopped taking orders because of their inability to produce. Routine ginning tests for the new season got under way on August 12.

Mr. Julien Houssiau of the Belgian Congo Cotton Company made a special trip from the Belgian Congo to the cotton ginning laboratories, which he visited August 4 to 7, 1936. Mr. Houssiau is in charge of 27 American-made cotton gins, which handle native cottons of about 1-inch staple length that are sent to Belgian spinners.

On August 22 Chas. A. Bennett presented a paper entitled "Progress in Ginning Tests and Instruments" before the North Carolina-Virginia Cotton Ginners' Annual Convention held at Raleigh, N. C.

R. B. Gray was in Rome, Italy on August 8, and expected to proceed from there to Berlin, Germany, then to travel in Denmark, Sweden, Belgium, and England studying progress in farm machinery and rural electrification. He will sail from Southampton about September 10 on his return trip.

According to D. A. Isler, the framework has been erected for an addition to the large screened cage at Presidio, Texas, to be used in connection with pink bollworm cultural control tests. When completed the 3-compartment cage will cover approximately 0.77 acre.

E. M. Mervine recently trucked an experimental sugar beet harvester from Fort Collins, Colo. to Davis, Calif., where he is working with S. W. McBirney. The harvester is an improvement over the previous models, and mechanical weaknesses apparently have been eliminated.

A plow-test unit designed by I. F. Reed has been completed at the Farm Tillage Machinery Laboratory, Auburn, Ala. and worked satisfactorily in preliminary tests. This unit measures the horizontal and vertical forces on a plow both at the hitch point and at the rear. Data obtained with this device using different settings of the hitch will enable calculation of the magnitude, direction, and location of the forces required to hold a plow bottom in its working position. Preliminary tests are now underway at the Laboratory on a Universal test unit planned to be used in a study of the effects of soil type and condition, and size, shape, and setting of disc on reactions set up in and by the disc. The shop facilities at the Farm Tillage Machinery Laboratory have been increased by the installation of a 200-ampere arc welder, a 28-inch upright drill press, and a 3-H.P. pedestal-type grinder.

Fertilizer placement experiments in Pennsylvania, New Jersey, Virginia, and North Carolina were recently inspected by G. A. Cumings. Tobacco at Lancaster, Pa. responds very little to potash in the fertilizer mixture applied broadcast in local practice, but our experiments indicate increased plant growth when the material is confined to a short band at each side of the plant. A rather extensive fertilizer-placement demonstration program is in progress by the New Jersey extension service. The demonstrations have shown convincingly that side placement of fertilizer insures more uniform germination, and higher yields of lima beans, peas, and sweet corn compared to local practices. Recently improved machines for this purpose have been adopted by a number of New Jersey farmers. In connection with the fertilizer machinery project, L. G. Schoenleber planted kale at Norfolk, Va. on August 6 and 10.

E. M. Dieffenbach reports that applications of spray materials have recently been made at Albany, Ga. for comparing the effectiveness of using one gun alone from the top of the sprayer tank and of using two guns, the second a multiple-nozzle gun operated from the ground.

W. R. Humphries and George Stafford have returned from the corn belt where data were obtained on performance of many combines harvesting small grain. Recent improvements have made small power take-off machines applicable to a wide variety of crops in the corn belt. On pneumatic tires these machines can be pulled at higher speeds than the large machines, and 2-plow tractors seem to have ample power for operating them at 5 miles per hour.

Publications issued:

Bibliography on flow of water around bends (mimeographed)